

WHAT IS CLAIMED IS:

1. A device for occluding a vascular segment, comprising:
an expansion member; and
first and second elongate members, wherein said first elongate member engages
said expansion member and said second elongate member engages said first elongate
member, said expansion member expanding to at least partially occlude the vascular
segment when one of said elongate members is moved longitudinally.

2. The device of Claim 1, further comprising a material that adjoins said
expansion member for creating a seal with the vascular segment.

3. The device of Claim 2, wherein said material does not completely
encapsulate said expansion member.

4. The device of Claim 1, wherein said expansion member is a filter-like
mesh attached to an indentation within said first elongate member.

5. The device of Claim 1, wherein said expansion member is in an
unexpanded state when it is surrounded by said second elongate member.

6. The device of Claim 5, wherein said expansion member expands when
said first elongate member is pushed through said second elongate member.

7. The device of Claim 5, wherein said expansion member is self-
expanding.

8. The device of Claim 7, wherein said self-expanding member comprises
a member selected from the group consisting of a braid, a coil, a ribbon-like structure,
a slotted tube, a plurality of ribs and a filter-like mesh.

9. The device of Claim 1, wherein said second elongate member is also
secured to said expansion member.

10. The device of Claim 9, wherein said expansion member expands as said
first elongate member is retracted.

11. The device of Claim 9, wherein said expansion member comprises a
member selected from the group consisting of a braid, a plurality of coils, a ribbon-
like structure, a slotted tube, and a filter-like mesh.

12. The device of Claim 9, wherein said expansion member expands as the

relative position of said first and second elongate members changes.

13. A method of occluding a segment within a vessel, comprising:
inserting first and second elongate members into the vessel, wherein the first
elongate member adjoins an expansion member; and

5 varying the position of at least one of the elongate members so that the
expansion member expands until the vessel is occluded.

14. The method of Claim 13, in which said varying step comprises
retracting one of the elongate members.

10 15. The method of Claim 14, in which said retracting one of the elongate
members causes the expansion member to expand.

16. The method of Claim 14, in which the expansion member adjoins both
elongate members, and the relative position of the elongate members is varied to
expand the expansion member until the vessel is occluded.

15 17. The method of Claim 13, in which said varying step comprises pushing
one of the elongate members through the other elongate member.

18. The method of Claim 13, further comprising:
performing a medical procedure near the occluded site; and
retrieving the elongate members and the expansion member from the vessel.

20 19. A method, comprising:
inserting an expansion member within the vessel; and
heating the expansion member to cause it to expand until the vessel is at least
partially occluded.

25 20. The method of Claim 19, in which the expansion member is comprised
of a material selected from the group consisting of heat activated Nitinol and an iron
base shape memory alloy.

21. The method of Claim 19, in which said heating the expansion member
comprises passing electrical current through it.

30 22. The method of Claim 19, in which said heating the expansion member
comprises flowing warm solution near the expansion member to heat up the expansion
member.